PROJECT TITLE   :   INSTRUMENTATION AND PROCESS
                           AUTOMATION

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Automation of the Smoking Laboratory

A method for reducing the amount of hardware necessary for the smoking machines' link-up is currently being studied. It involves the use of an interface which analyses simultaneously the state of the 20 micro-switches present on each of the smoking machines and whose function is to stop the smoking.

The electronic interface we are developing will be linked to a modular micro-computer, HP 9915, which will increment the various puff counters. The latter will be stored in the form of indexed variables (data array) and will be kept in the memory until the next smoking. The HP 1000 computer will read periodically, when it has the time available, the HP 9915 tables to introduce into the data base the number of puffs of the brands of cigarettes analysed.

RTD/DIL Data Processing

At the present time, two programmes are available for processing physical data : "RTDIL" and "REPORT". Manual keyboard input enables the processing of daily and monthly results. The manual input deals with the following data :

- cigarette code;
- reference code of the production machine;
- average RTD value of a sampling of 10 cigarettes with the corresponding standard deviation (S-RTD);
- mean value and standard deviation of the dilution of the same sample (DIL and S-DIL).

The "RTDIL" programme for daily processing enables the above-mentioned physical data to be recorded for several brands on different machines (limit of 25 brands - machines) and performs the following functions :

a) Permanent storing of the last 10 measuring points for each brand - machine;

b) Permanent display on a screen of the RTD/DIL averages, estimated standard deviations, minimums and maximums obtained during the day of all the reference brands - machines;

c) Automatic checking of the validity of all the numerical input as compared with the specifications of the brand. Identification on a screen of any off-range values;

d) Checking of the validity of all the cigarette codes and machine's references introduced via the keyboard;

e) Correction of all the individual values in the memory using
   a pass-word;

f) Graphic screen editing of the RTD/DIL tendencies of the brand -
   machine values stored in the memory;

g) Automatic out-put of the daily report with the graphs and
   mean RTD/DIL values for all the brands produced during the day.

The "REPORT" programme enables the monthly values of all the brands
to be computed by processing the untreated values stored on magnetic
tape. This computation is carried out automatically by a process
which gives access to the following information :

(i)   Day to day graphic report of five different brands with
       the tendencies of the daily RTD and DIL averages;

(ii)   Averages and standard deviations of RTD and DIL values of
       all the brands produced during the month;

(iii) Month to month graphical report of the last twelve months
       of all the brands produced at Serrières.

These two programmes will be tested and optimalized by the users
from September 14 1981 onwards.

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